

A

The diagram illustrates the process of homologous recombination. At the top, a genomic DNA segment is shown with a 5' end, a restriction site 'A', a box labeled 'exon 1', and a 3' end 'S'. An 'ATG' start codon is indicated above the exon 1 box. Below this, a plasmid is shown with a 3' end 'S', a box labeled 'neo', and a restriction site 'A*'. A downward arrow labeled 'Homologous Recombination' points to the final state. In the final state, the genomic DNA segment now contains the 'neo' cassette, with the 'A' site replaced by 'A*' and the 'exon 1' box now containing the 'neo' cassette. Below the final state, a legend indicates that a black box represents the 'probe'. Two double-headed arrows are shown: one labeled '1.0 kb' spanning from the 'A' site to the end of the 'neo' cassette, and another labeled '4.3 kb' spanning from the 'A' site to the 'S' end.



		PKC ϵ genotype						
		+/+		-/-		+/+		μ g
		40	80	40	80	40	80	
80 kDa	→							PKC α
80 kDa	→							PKC β
80 kDa	→							PKC β II
80 kDa	→							PKC γ
80 kDa	→							PKC δ
92 kDa	→							PKC ϵ
80 kDa	→							PKC η
82 kDa	→							PKC θ
67 kDa	→							PKC ζ
110 kDa	→							PKD

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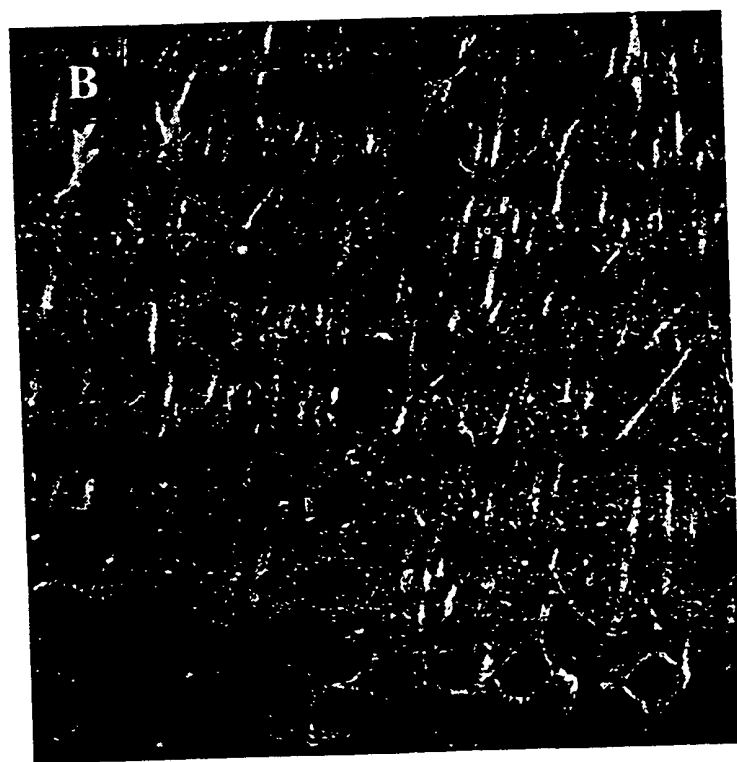
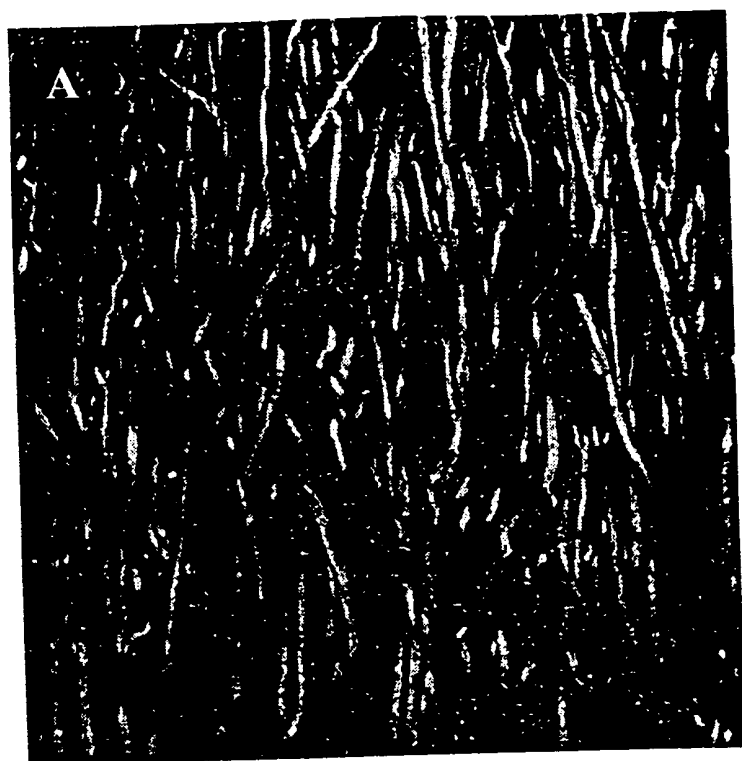
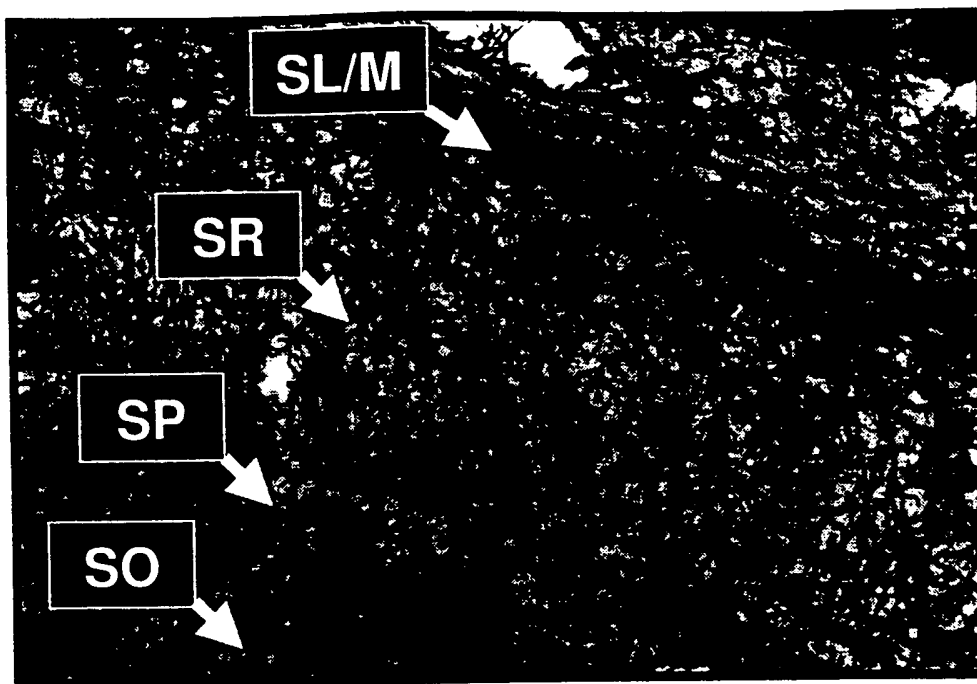


FIG. 3

PKC ϵ +/+



PKC ϵ -/-

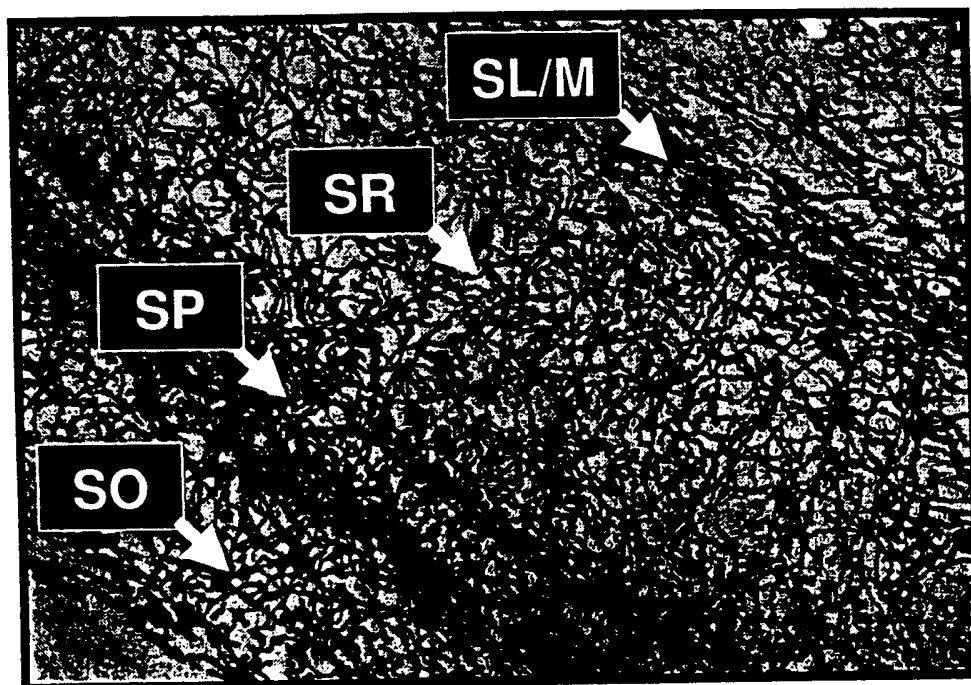


FIG. 4

Figure 1 consists of three bar graphs comparing PKC $\epsilon^{+/+}$ (white bars) and PKC $\epsilon^{-/-}$ (black bars) mice. The y-axis for all graphs represents a physiological parameter. The x-axis for all graphs shows Male and Female groups. Statistical significance is indicated by asterisks (*, **).

- Body Weight (g):** The y-axis ranges from 0 to 35. PKC $\epsilon^{+/+}$ mice have a body weight of approximately 27.5 g (Male) and 23.5 g (Female). PKC $\epsilon^{-/-}$ mice have a body weight of approximately 26.5 g (Male) and 23.0 g (Female). Significant differences are marked with ** for males and * for females.
- Food Intake (g/g):** The y-axis ranges from 0.00 to 0.25. PKC $\epsilon^{+/+}$ mice have a food intake of approximately 0.14 g/g (Male) and 0.15 g/g (Female). PKC $\epsilon^{-/-}$ mice have a food intake of approximately 0.13 g/g (Male) and 0.16 g/g (Female). Significant differences are marked with * for both males and females.
- Water Intake (ml/g):** The y-axis ranges from 0.00 to 0.30. PKC $\epsilon^{+/+}$ mice have a water intake of approximately 0.20 ml/g (Male) and 0.24 ml/g (Female). PKC $\epsilon^{-/-}$ mice have a water intake of approximately 0.17 ml/g (Male) and 0.22 ml/g (Female). Significant differences are marked with ** for males and * for females.

Parameter	Sex	PKC $\epsilon^{+/+}$ (White)	PKC $\epsilon^{-/-}$ (Black)	Significance
Body Weight (g)	Male	~27.5	~26.5	**
	Female	~23.5	~23.0	*
Food Intake (g/g)	Male	~0.14	~0.13	*
	Female	~0.15	~0.16	*
Water Intake (ml/g)	Male	~0.20	~0.17	**
	Female	~0.24	~0.22	*

FIG. 5

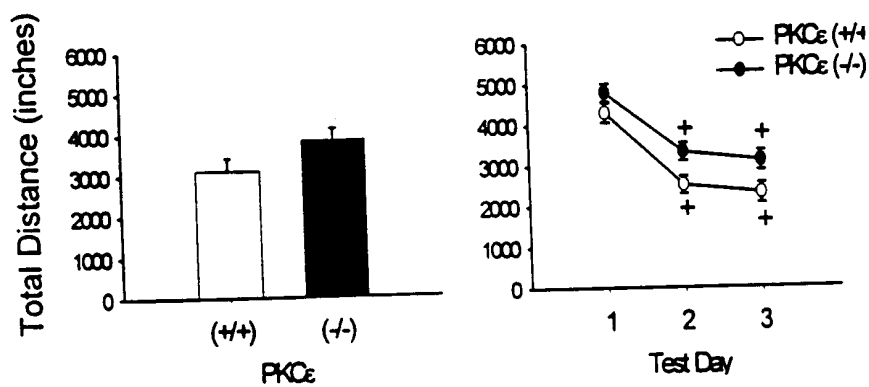


FIG. 6

Figure 1: Effects of PKC ϵ on spatial learning.

The figure displays six graphs showing the effects of PKC ϵ genotype on spatial learning performance in male and female subjects.

Top Row: Total Distance in Center (inches)

Male:

Genotype	Test Day 1	Test Day 2	Test Day 3
+/+	~600	~250	~200
-/-	~1150	~650	~600

Female:

Genotype	Test Day 1	Test Day 2	Test Day 3
+/+	~950	~550	~400
-/-	~1300	~850	~800

Bottom Row: Total Distance in Residual (inches)

Male:

Genotype	Test Day 1	Test Day 2	Test Day 3
+/+	~2600	~1300	~1100
-/-	~3600	~2600	~2300

Female:

Genotype	Test Day 1	Test Day 2	Test Day 3
+/+	~3400	~2300	~2200
-/-	~4300	~3000	~2800

In all cases, PKC ϵ -/- subjects show improved performance (less distance in center, more distance in residual) compared to +/+ subjects. Statistical significance is indicated by asterisks (*) in the bar graphs and plus signs (+) in the line graphs.

References



Elevated Plus Maze

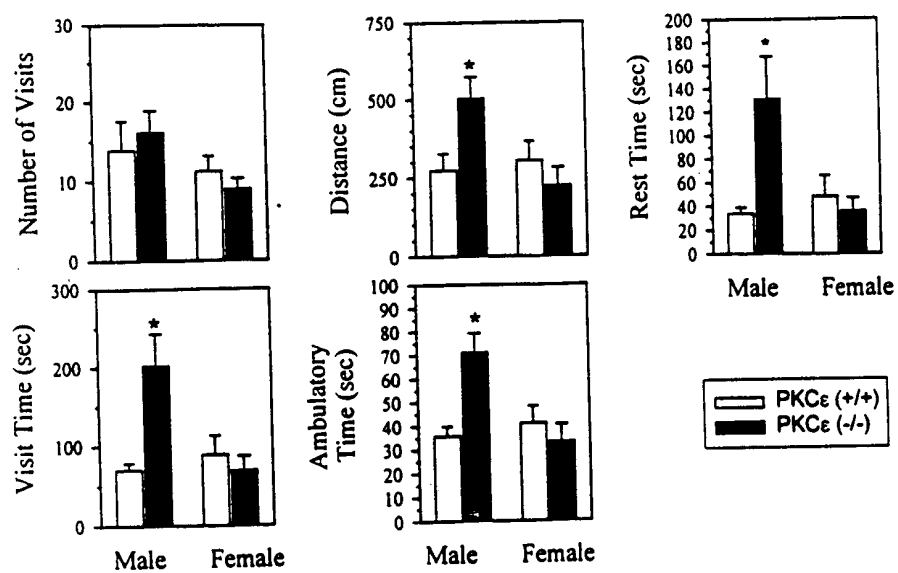
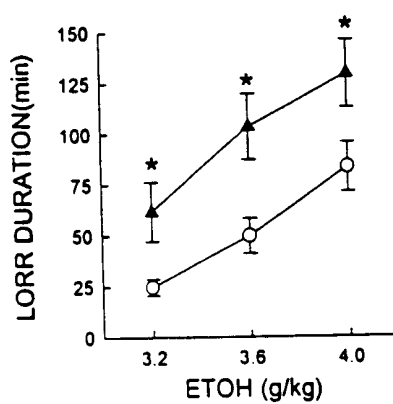
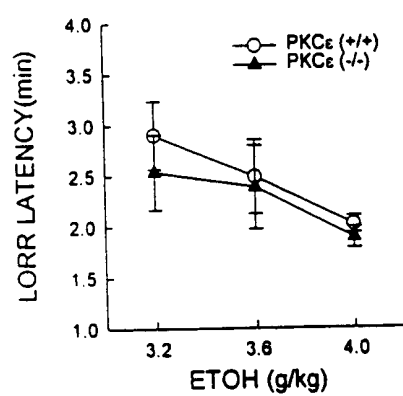


FIG. 9



* - p < 0.05 as compared to (+/+)

FIG. 10

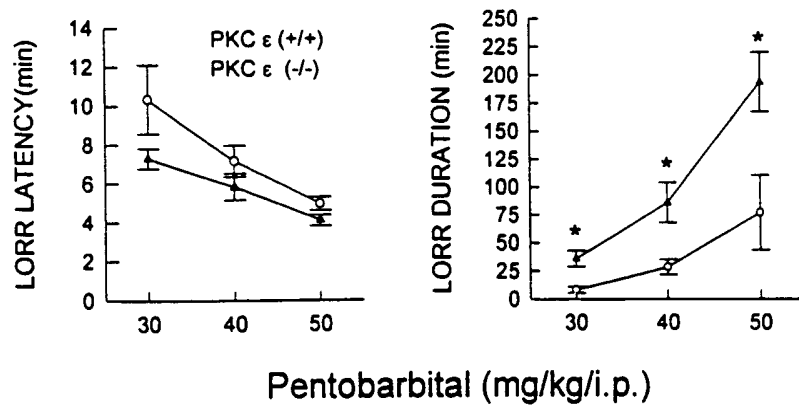


FIG. 11

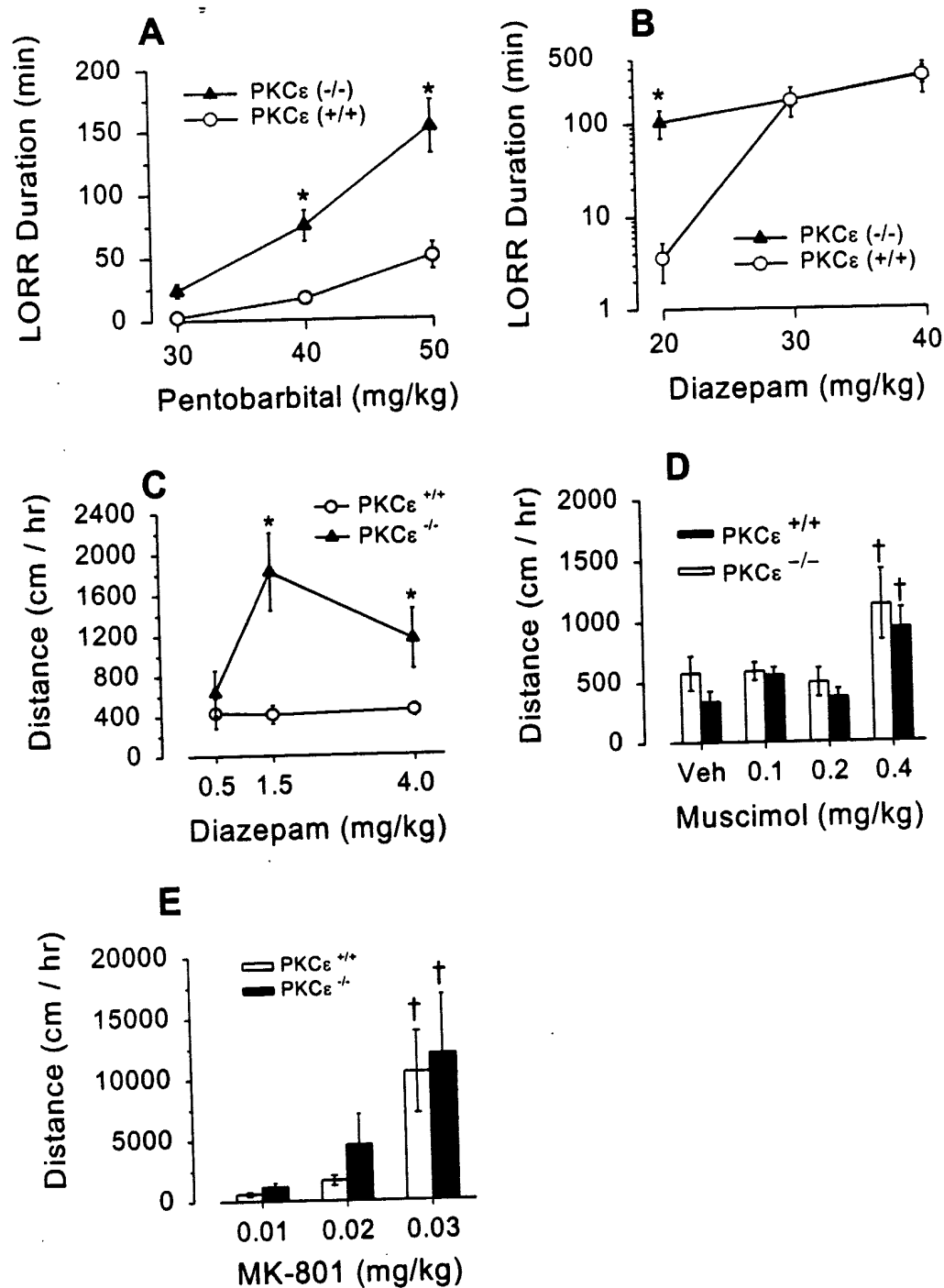


Fig. 14

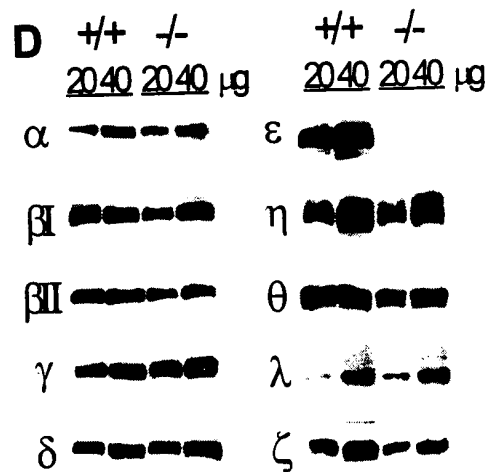
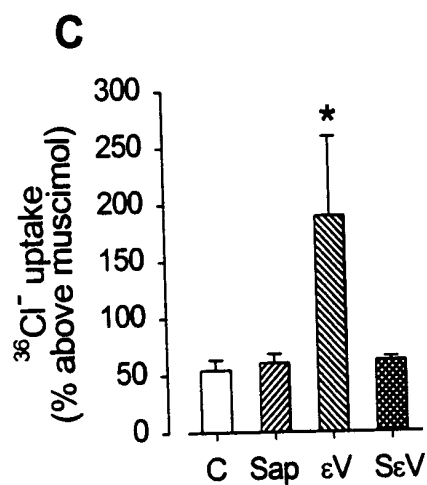
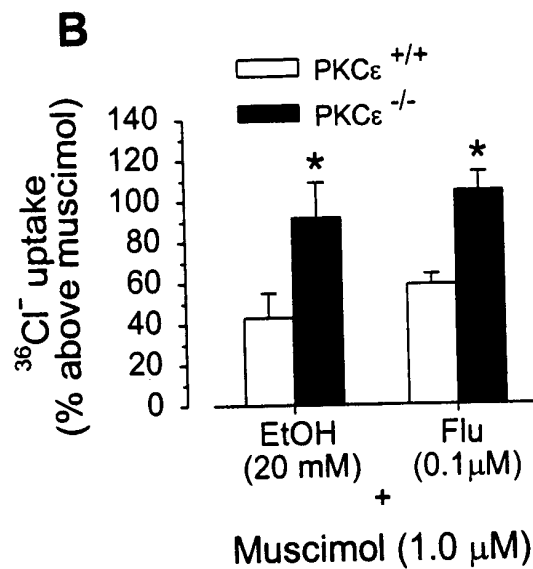
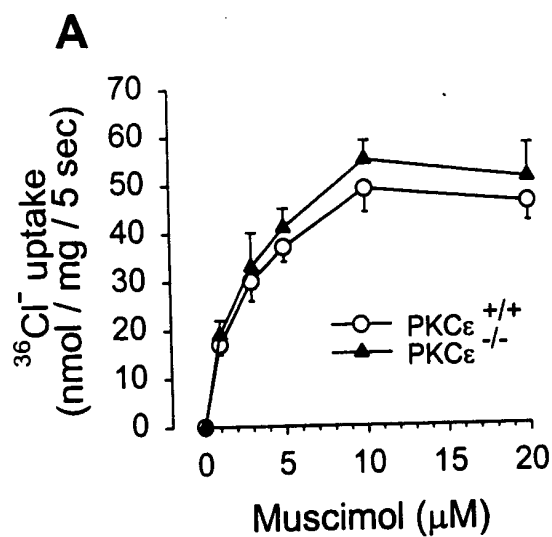


Fig. 15

Average Ethanol-Induced Withdrawal Seizure Score

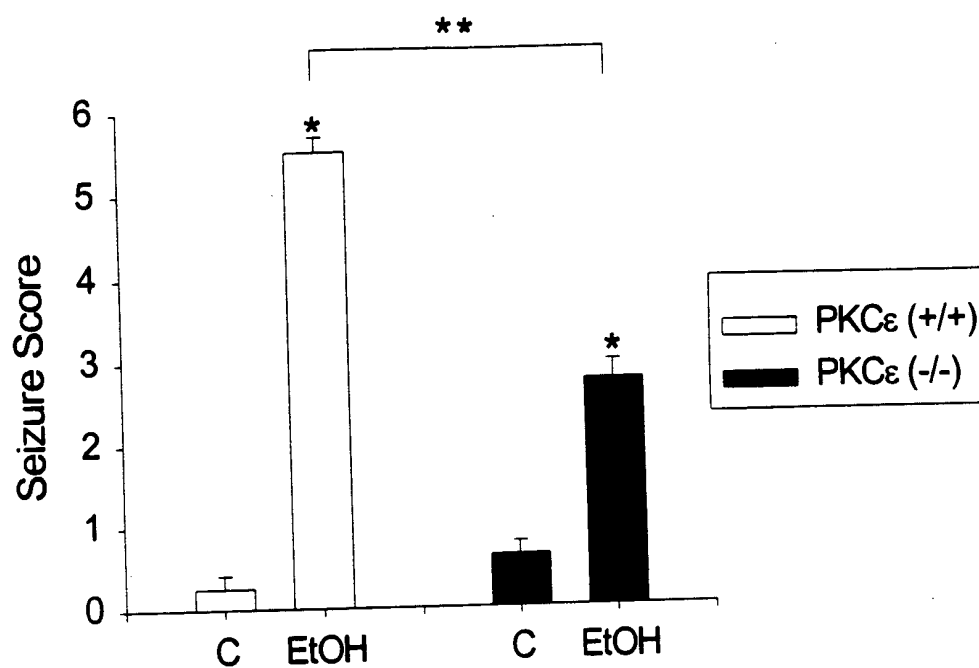


Fig. 16

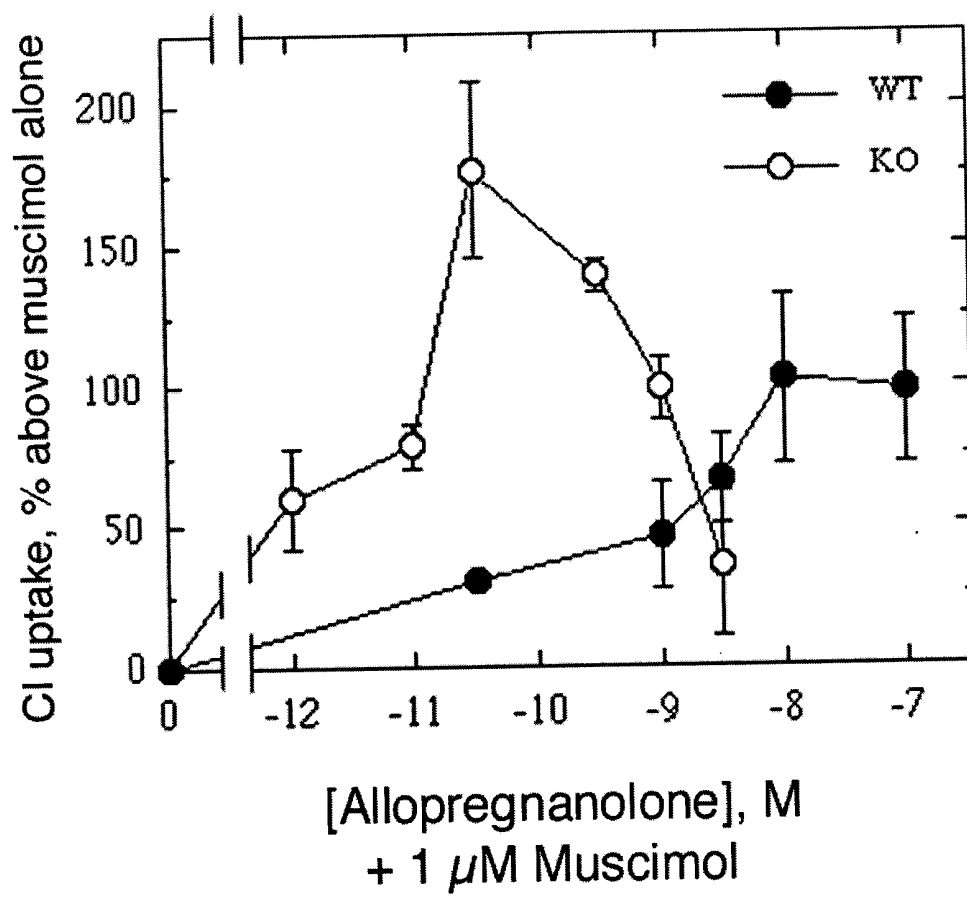
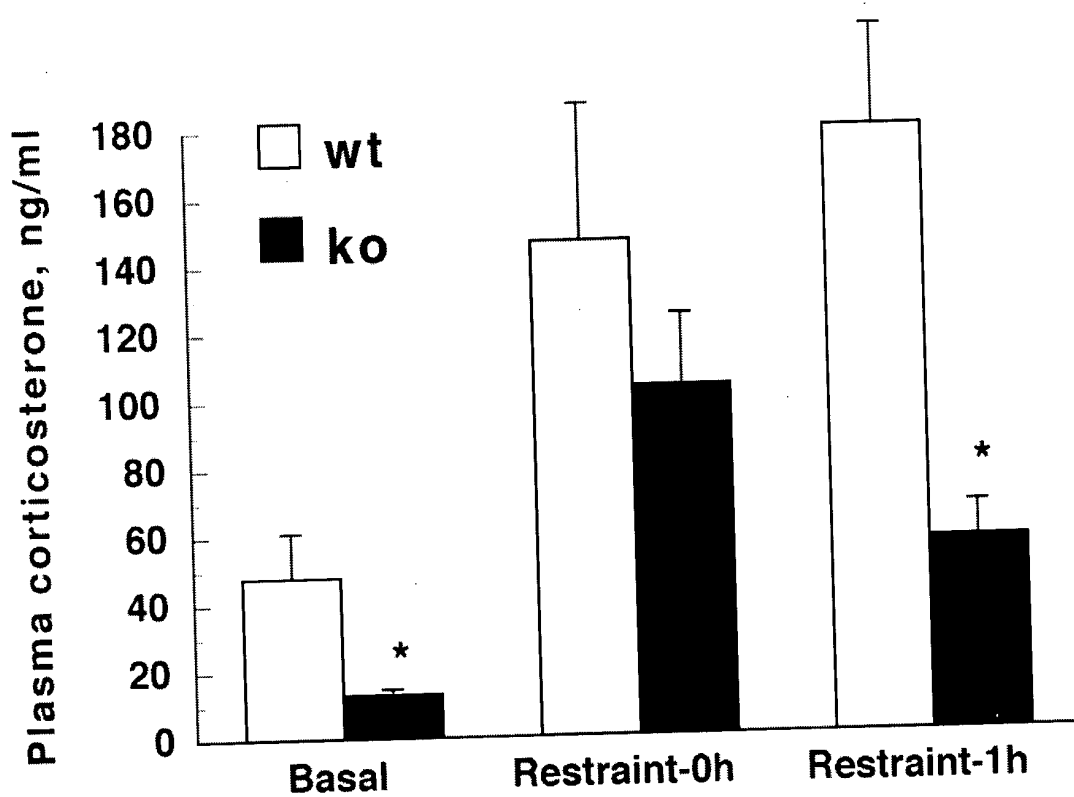


Fig. 17



* $P < 0.05$ compared to wild-type

Fig. 18

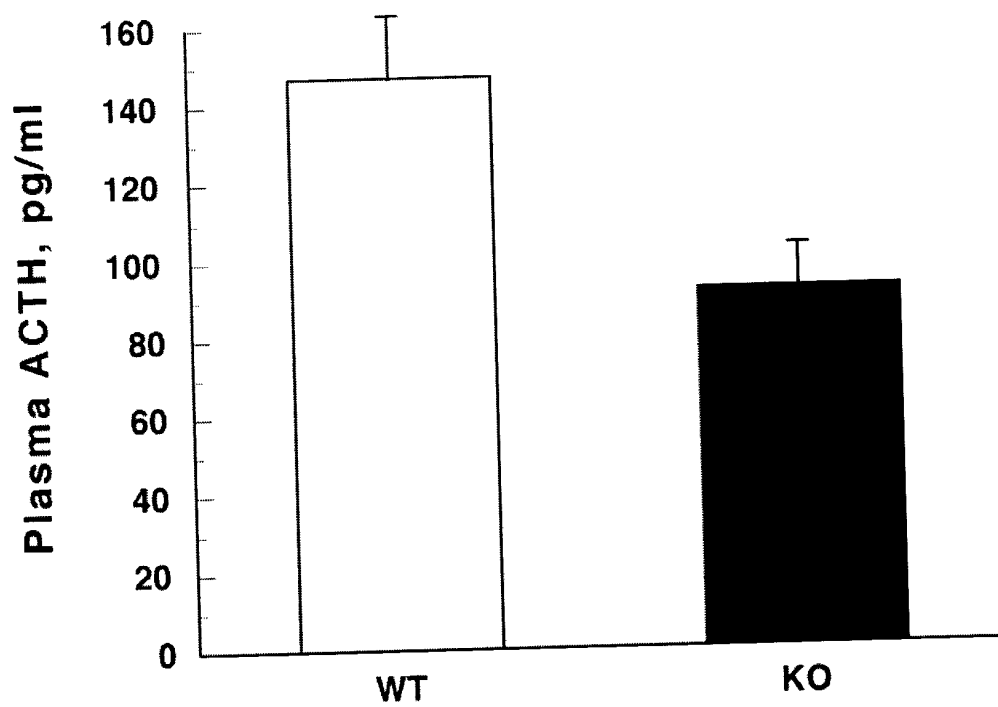


Fig. 19

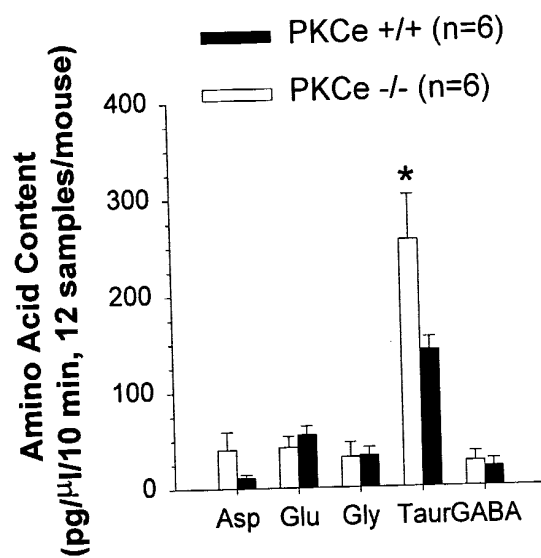


Figure 20

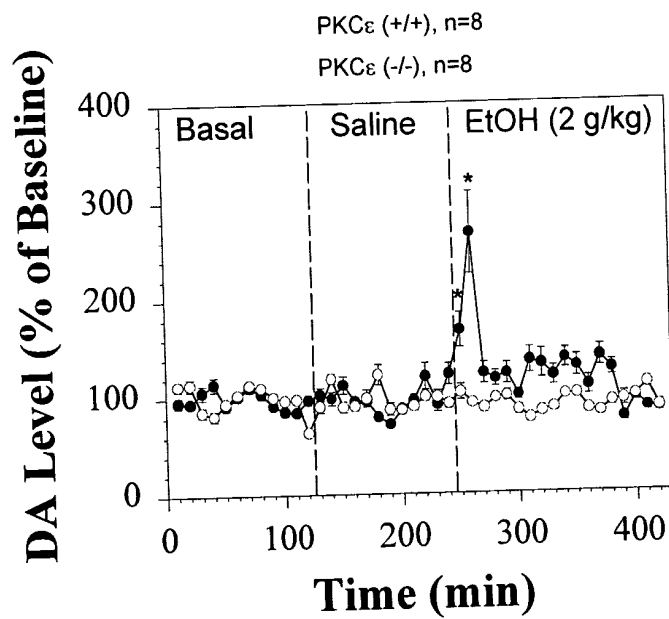


Figure 21